

t18_sublemma

(TMSwfgFtx86tjZcd1XpAbhhUanJ7TQ56ohL)

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Let $m1_qc_lang1 : \iota \Rightarrow o$ be given. Let $v1_xboole_0 : \iota \Rightarrow o$ be given. Let $m2_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_qc_lang1 : \iota \Rightarrow \iota$ be given. Let $k2_valuat_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m2_subset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k16_subst1 : \iota \Rightarrow \iota$ be given. Let $k38_subst1 : \iota \Rightarrow \iota$ be given. Let $r2_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k3_sublemma : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k5_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k18_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k20_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k6_cqc_lang : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_sublemma : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k19_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_subset_1 : \iota \Rightarrow \iota \Rightarrow o$ be given. Let $k1_zfmisc_1 : \iota \Rightarrow \iota$ be given. Let $k2_zfmisc_1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $m1_funct_2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$ be given. Let $v1_funct_1 : \iota \Rightarrow o$ be given. Let $k4_relset_1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$ be given. Let $k2_subst1 : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall X0.(m1_qc_lang1 X0) \Rightarrow (\forall X1.(m2_subset_1 X1 (k16_subst1 \\ X0) (k38_subst1 X0)) \Rightarrow ((k18_subst1 X0 (k20_subst1 X0 X1) = \\ k6_cqc_lang X0 (k2_sublemma X0 X1)) \wedge (k19_subst1 X0 (k20_subst1 \\ X0 X1) = k19_subst1 X0 X1))) \end{aligned} \quad (1)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.\forall X3.((m1_subset_1 X2 \\ (k1_zfmisc_1 (k2_zfmisc_1 X0 X1))) \wedge (m1_subset_1 X3 (k1_zfmisc_1 \\ (k2_zfmisc_1 X0 X1)))) \Rightarrow (r2_relset_1 X0 X1 X2 X2) \end{aligned} \quad (2)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.((\neg v1_xboole_0 X0) \wedge ((\neg v1_xboole_0 X1) \wedge \\ (m1_subset_1 X1 (k1_zfmisc_1 X0)))) \Rightarrow (\forall X2.(m2_subset_1 \\ X2 X0 X1) \Leftrightarrow (m1_subset_1 X2 X1)) \end{aligned} \quad (3)$$

Assume the following.

$$\begin{aligned} \forall X0.\forall X1.\forall X2.((\neg v1_xboole_0 X1) \wedge (m1_funct_2 \\ X2 X0 X1)) \Rightarrow (\forall X3.(m2_funct_2 X3 X0 X1 X2) \Leftrightarrow (m1_subset_1 X3 \\ X2)) \end{aligned} \quad (4)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k38_subst1\ X0)))\Rightarrow(k5_sublemma\ X0\ X1 = k20_subst1\ X0\ X1) \quad (5)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\neg v1_xboole_0\ (k38_subst1\ X0)) \quad (6)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(m1_subset_1\ X1\ (k38_subst1\ X0)))\Rightarrow(m2_subset_1\ (k5_sublemma\ X0\ X1)\ (k16_subst1\ X0)\ (k38_subst1\ X0)) \quad (7)$$

Assume the following.

$$\forall X0.\forall X1.\forall X2.\forall X3.((m1_qc_lang1\ X0)\wedge((m1_subset_1\ X1\ (k38_subst1\ X0))\wedge((\neg v1_xboole_0\ X2)\wedge(m1_subset_1\ X3\ (k2_valuat_1\ X0\ X2)))))\Rightarrow((v1_funct_1\ (k3_sublemma\ X0\ X1\ X2\ X3))\wedge(m1_subset_1\ (k3_sublemma\ X0\ X1\ X2\ X3)\ (k1_zfmisc_1\ (k2_zfmisc_1\ (k3_qc_lang1\ X0)\ X2)))) \quad (8)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(m1_subset_1\ (k38_subst1\ X0)\ (k1_zfmisc_1\ (k16_subst1\ X0))) \quad (9)$$

Assume the following.

$$\forall X0.\forall X1.((m1_qc_lang1\ X0)\wedge(\neg v1_xboole_0\ X1))\Rightarrow(m1_funct_2\ (k2_valuat_1\ X0\ X1)\ (k3_qc_lang1\ X0)\ X1) \quad (10)$$

Assume the following.

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(m2_subset_1\ X1\ (k16_subst1\ X0)\ (k38_subst1\ X0))\Rightarrow(\forall X2.(\neg v1_xboole_0\ X2)\Rightarrow(\forall X3.(m2_funct_2\ X3\ (k3_qc_lang1\ X0)\ X2\ (k2_valuat_1\ X0\ X2))\Rightarrow(k3_sublemma\ X0\ X1\ X2\ X3 = k4_reset_1\ (k3_qc_lang1\ X0)\ (k3_qc_lang1\ X0)\ (k3_qc_lang1\ X0)\ X2\ (k2_subst1\ X0\ (k19_subst1\ X0\ X1))\ X3)))) \quad (11)$$

Assume the following.

$$\forall X0.(v1_xboole_0\ X0)\Rightarrow(\forall X1.(m1_subset_1\ X1\ (k1_zfmisc_1\ X0))\Rightarrow(v1_xboole_0\ X1)) \quad (12)$$

Theorem 1

$$\forall X0.(m1_qc_lang1\ X0)\Rightarrow(\forall X1.(\neg v1_xboole_0\ X1)\Rightarrow(\forall X2.(m2_funct_2\ X2\ (k3_qc_lang1\ X0)\ X1\ (k2_valuat_1\ X0\ X1))\Rightarrow(\forall X3.(m2_subset_1\ X3\ (k16_subst1\ X0)\ (k38_subst1\ X0))\Rightarrow(r2_reset_1\ (k3_qc_lang1\ X0)\ X1\ (k3_sublemma\ X0\ X3\ X1\ X2)\ (k3_sublemma\ X0\ (k5_sublemma\ X0\ X3)\ X1\ X2))))))$$